Inspector: Shannon Klimek #92

#### 20 NOV 15 GR 040136\_NOV 735371\_0902015

<Inspection report - file nomenclature>

Field Notes مرح م

Permit/Parcel/Notification Number: Ø40136

Facility/Site Name: Hickman's EGG Raugh.

PREMIT: MICKMAN'S FAG, RANCH, INC.

6515 S. DACKRABBIT TR., BU 85326

Date of inspection: 20 August 20 NOV2015/0815 ms - 1240

Violation:

PERMIT ON-SITE V. 2.0.1.0 CREMATORY PISCONNECAND FROM FUEL SUPPLY - GRINDER + INCINERATION OBSIDERS . COMOST AND MANUEL PILLS OBSERVED FROM OFF-SITE OFF-SITEBILY

COMPLIANCE PRODUSTRATION (B) TSS HP 755 HOURS 215.5 (BHP OR KW /HOURS 215.5 (B) DIDNAHAR 10% HR EMERRICY ENGINE (1) 755 HP 755 V IIII G-L., DIASAL ... 2010. 280 HP mer 2222 ZNEKOOOB N 1998 X 380 HP G-3 380 HP 9-41 <del>425</del>. 738. 9 12 380 HP 697.6 (12) ·V-·· .1999. 280 HP 635.L 380 HP MACT ZZZZ G-7 2004 DIESEL - UNABLE TO WELLEY \_5.5 KW PROPANE 4 G-8 510.2 2005 11-05 380 HP MACT 2222 G-9 DIRSEL 419.0 √ 310 HP NSAS IIII G-10 - 352 HP G-11 -V. . 2007\_ 200 8 2007 685 HP 9-12 970.5 9-13 9-14 1 237 HP G- 15 C7-16 -. 350,25 G-17 G-18 9-19 -422HP 167.1 FM-L 145.2 .464 HP G-20 · · 464 HP G-21 2012 147.8 0% VE G-22 129.3 9-23 G-24 NYSITTI G-25 MASEL. W. 2013 2014 464 MP.

> 464 np. 2015 4

28.4

- (D)

	0
RECURS S REQUIRED:	
INITIAL ONE-TIME ENTRY	
MONTHLY ROLLING 12-MONTH TOTAL OF HOURS FOR PREIOD NOV 2011 to OCT 21	015
OIL AND FILTER CHANGE PATES (AND HOURS ON METAL CORRESPONDED	
[] INFP./ REPLACEMENT DATES FOR ATR ELEANCES, SPACE PLUGS, AND BELLES	
[] OTHER AMISSIONS-RELATED PERFORMS / MOINT. PERFORMS.	
P.C. 12 - # FOR GLURRATOR G-1+G-10 MOUNT G-25 (ZIII)	
COPY OF MANUFACTURES WATER (KMISSTANS (SCHANG FOR MOON THUME)	
I GODY OF MANUE, DATA PRIVING COMPLIANTE A/ EMISSION STANDARDS.	
FOR GAMMASONS (ALLENTA B) (166)	
FOR ALL ENGINES - OTC - ALL INSTRUCTIONS AT TACKLASS IT PALLIS.	ONSITE
[ FUEL/SULFIX CONTRATO VERIFICATION - FROM CALVERT OIL COOPER, BU RED MESE	در.
GASOLINE STORAGE AND PISKUSING.	
500 GAL. ABOUT GROUND TANK.	
1 POINT OR 2 POINT? NOW.	
M- INSPECTION LOG W/ WEEKLY INSPECTIONS. BEADILY ACCESSIBLE /WITHOUT PERROSS 5.502.4 (FOR PERIOD NOVIY THROUGH OCT 15)	-pruy.
BASIC TANK INTECRITY	
IN SPILL CONTAINMENT NO SPILL CONTAINMENT	
PASSAGRWAY FOR DRAIN ING INTO TAME?	
SUBMERED FILL PIPE? MEASURED 510	
IT THEREOS, CASKETS, FILL PIPE ASSEMBLY TIGHT? NO GASTEL DIO	CAY
DVII) FILL PIPE CAP /GASKET ( W)	Proor
¬	
= Bluk Trank - 5 FAC	
? MANNE USE - WHITE KONY. ?. BOILER 1 Boiler 2 420 MARCE 1/2,	1/3
300)	*1 3
1.46 mm bts/h.	

Inspector: Shannon Klimek #92

#### 20 NOV 15 040136\_NOV 735371-09 DECS SM

<Inspection report - file nomenclature>

rg 3 Field Notes

Permit/Parcel/Notification Number: 04013 6

Facility/Site Name: H:cknows EGG Rancu.

Date of inspection: 2010/2015/

Violation:

ODORS; See 13. 1 or noms

FILE REVIEW:

PERMIT STATUS: ISSUED

MISTORY: 31 2AN 2011 - NOV 7-32723877 - REOUS 301 - FAILURE TO REWSE ALLAST.

7 mm 2014 - NOV R314 5301 - UNLAWFUL OPEN BLEWIFE (CONFOS F)

LAST ING. 28 MARZOIL - INCONCER.

OPERATIVE PARAMETERS: R320 R324 K353

MISC: CREMATORY DISCONNECTED

- · MULCHING + FRATLIER PILES TO BE SPRUTINIZED FOR BURUME.
- 0 NO DEP RECENTRAD 49-457 EXEMP.
- . NO DEM REQUIRED
- . PRANT MOD PRINTING REGIVE FEED MILL

- ADD FUEL BURNING

PERKORIANGE TRISTING: (CONFURNCE DEMONSTRATION)

ow/, 90 ms H25 - AGAININ 6 mo

NEW GEN'

G-39 cummins 2015 464 NB G-42 cumins 2015

6-43 curnins 2015

G44 NURTH

TAT MAINT FAC. NEW CONST IN PROCRESS

MR. RUIZ STATES OPPRATION MANUALS FOR ALL GLUSRATURS AT TACKRANSIT CACILITY. -> I EXPLOYURD MUST BE ON -5,7%.

AN- # GZ3+GZ5 -NO OI CHAMBES SINCE INSTALLY - GREW PHINAGE FLINGS WELL INSTALLY BYMANUF. K

0 0/08c15 -0540-6945 - The TO F. Ruiz. NEW DATE FOR RECORDS SUBJECTED, 7-08c-2018.

CCto

CCto

CCto

RECZOS - 1100 mark TO F. Ruiz +3 YMMS RE.

RELOWS REGISSORS - DUR GTOECIST

Ps. 4

14 DEC 15 - The W/ Mr. RUTE - STATUS FORMER. SHUP MANAGER CEST

2013 - D CLIRENT MANAGER COMMINED LADE 2014.

I PER UPSTED SUBMITTED OF THE MAINT SCHEDULES

AS PRELADUSCY REQUESTM. THE RUTE STATED WE THOUGHT

WE HAP SENT MOSE, THEY ARROUND TO COMPAY.

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G-12 through G.19 THETO GAMPSIONS SPECS ON SUMMITTED

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MOTH PROUPLD.

NO DOSTA PECCHAR FOR FOLLOWING EVENTS.

NOT G-1 - motel @5×15-69 TIRR 2

V G10 - anan/warms (22 100) Q569-62

G-11 - ona / evanins · Q569-G3 N

mot G-12 to Git Karoliani (Dermit) serves 60

NOT G+3 10 G19 KATOLICHT (DOWN DEFRE) 6090 HF 4BS

6090 HF 285

6-20-8-21 RSL9-63

G-22-6-25 ascq-67

V FM-L GSB7-G5 V 142AUR PURY UNT MSG.

G-39 QSL9-G7

G-42 Q5L9-G7

133AN2016 - The f. Ruic. STANAS. NE COCATAL COST TWO OWNERS MANUALS.

10. Letroit diesel cevies 60 of horologue Eurill suns me Recommended many t my. success soon. I informly I am formally issum ot for failures to been an site copy and will resource by sugnition of man. PRECORDS WARE DUE 10.08645.

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I explaints Rule 353 purstians Bethermore Clarification.

10. BAP gentlet of vents. I interest summerves present Blethe Composed.

Inspector: Shannon Klimek #92

040136\_NOV 735371\_ 0906C15

<Inspection report - file nomenclature>

Field Notes

P8 5

Permit/Parcel/Notification Number: 040136

Facility/Site Name: H: CKMSNS EGG RAWH

Date of inspection: 20 NIV 2015

Violation:

31-Prc-2015 — Emil From M. RUZ -> STILL ATTRIPTING TO

OBTAIN Emission DATA FOR KATOLIONE PROM MANUAGETHING

(\$6 200-2016 — I MARMAD VIOLATIAN ISSUED FOR NOT MANUA REBURNED

RELOAD .-> POTENTIALLY CONCURRED W/ OTHER OTE WIND

R 270/6 302.7 - WILL RUIN RAN THIS RUSS-MILIT. - BSZ

A SKLAPATE OTC. - REQUIRED CONFECTIVE ACTION IS

TO OSTAN RED DESISSION MATA.

UIA T/C TO FROM Priz. - This UIOLATIAN APPLIANS

SUPRATE FOR P.C. 13.6. VIUSUS OTHER UIOLATIAN EN P.C. 13.C.

V	
A STATE OF THE STA	
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1) INITIAL ONE-TIME ENTRY FOR EACH GENERATOR 13 e. ;.	
2) ROLLING-12 MO FOTALS OF ENGLISH HOURS FOR FITE GENELATORS  (G-2 THROUGH G-9) FOR PORISON MOV 2011 TO OCT 2015	
HOURS OF MAINT TRESTURE AND HOME FOR EVENC USE	
(Sov)	
3) OIL & FILTER CHANGE DATES & HOURS ON METER CORRESEMIBLE TO THE CHANGE	
4) WERECTION PREPAREMENT DATES FOR AFR CLEANERS	
SPARK PLUGS, AND BELTS.	
5) OTHER FINISSIONS - RELATED REPORTS (MOTHER PERFORMS)	y sh J. S.
2) COPY OF MANUF. DATA PROVING CONALING WITH EMESSIONS STANON	५०४
8) COPY OF MOULE WRITTEN WS TRUCTIONS / PROCEDURES GOT MAINT	
9) FULL SULFUR CONTENT VKEIFTGATTON.	
THE SOURCE CENTER VALUE OF THE SOURCE CENTER VALUE OF THE SOURCE CENTER VALUE OF THE SOURCE OF THE S	

#### **CUMMINS / ONAN POWER GENERATION MAINTENANCE GUIDELINES**

	Service Intervals					
Maintenance Checks	Daily or after 8 hours	Weekly or after 50 hours	Monthly or after 100 hours	Bi-annually or after 250 hours	Yearly or after 500 hours	Every 2 years or after 100 hours
Visual Inspection:						
Visually Inspect Genset	X <sub>(1)</sub>					
Visually Inspect Drive Belt	X <sub>(5,8)</sub>					
Check Oil Level	Х		•			
Check Heater	Х					
Check Fuel Level & System	Х		· ·=			
Check Air Cleaner (clean if required)		X (2)				
Check Battery Charging System		Х				
Drain Fuel Filter (if equipped)		X (4,5)				
Technical Inspection (plus above):						
Automatic System Test			Х			
Check Anti-freeze and DCA Concentration			X (5)			
Check Drive Belt Tension			X <sub>(3,5)</sub>			
Drain Exhaust System & Condensate Trap			Х			
Check Starting Batteries			X			
Check Radiator Hoses for Wear and Cracks			Х			
Check Generator Air Outlet			Х			
Check Sender Functionality			X			
Annual Full Service (plus above):		<b>.</b>				
Change Crankcase Oil and Filter				X (7)		
Change Coolant Filter				X (5)		
Change Fuel Filter				X (5)		
Clean Crankcase Breather				X (5)		
Sample Fuel, Oil and Coolant (on request for add'l charge)				X <sub>(7)</sub>		
Performance Testing:						
Full Load Test - Minimum 2 hours					X <sub>(9)</sub>	
Transfer Test (requires Customer Approval)					Х	
Two Year Full Service:					12	
Change out Batteries						Х
Replace Coolant and Clean/Flush Coolant System						Х
Replace Hoses and Belts						X (5)
Overhead Set - Adjust						X <sub>(5)</sub>
Notes:					pris.	

- 1. Check oil, fuel, cooling and exhaust system leaks. Check exhaust system audibly and visually with set running and repair any leaks immediately.
- 2. Perform more often in extremely dusty conditions.
- 3. Visually check belts for evidence of wear or slippage.
- 4. Drain 1 cup or more of fuel to remove water and sediment.
- 5. Refer to engine operation and maintenance manual for procedure.
- 6. This procedure should be followed throughout the life of the generator, or if the generator has set idle for a period of time with no heater used. Contact your authorized service center.
- 7. If genset is used for prime power, change oil and filters every month or 250 hours. If used for standby applications, change oil every 12 months or 250 hours, whichever comes first.
- 8. Check drive belt tension after 8 hours of operation, thereafter, as noted in above table.
- 9. To comply with NFPA 99 or 110, load testing is required. This test may require loadbanks.

# PowerTech Plus™ 9.0 L 6090HF485 Tier 3/Stage IIIA OEM Diesel Engines

# OPERATOR'S MANUAL PowerTech Plus 9.0 L 6090HF485 OEM Diesel Engines

OMRG36864 Issue 22Apr05 (ENGLISH)

# CALIFORNIA Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

#### **A** WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

John Deere Power Systems

Serial Number: 161482 - Page 115

#### Diesel Engine Oil and Filter Service Intervals

The oil and filter service intervals in the table below should be used as guidelines because actual service intervals also depend on operation and maintenance practices. It is suggested that oil analysis be used prior to each oil change to be certain the proper oil and filter service interval is selected.

Oil and filter change intervals are based on oil pan capacity, type of oil and filter used, and sulfur content of the diesel fuel.

Refer to the following table for oil and filter service intervals.

Oil and Filter Service Intervals					
	Standard Oil Pan *	Extended Drain Oil Pan <sup>b</sup>			
Fuel Sulfur Level	Less than 100	0 ppm (0.10%)			
With Standard Oil	250 hours	250 hours			
With Premium Oil	375 hours	500 hours			
Fuel Sulfur Level	1000 to 5000 ppr	m (0.10 to 0.50%)			
With Standard Oil	150 hours	150 hours			
With Premium Oil	250 hours	250 hours			
Fuel Sulfur Level	5000 to 10,000 pp	m (0.50 to 1.00%)			
With Standard Oil	100 hours	100 hours			
With Premium Oil	150 hours	150 hours			
<sup>a</sup> Oil Pans with Option power levels)	Codes 1909, 1914, 191	15 or 1916 (lower			
Oil Pans with Option	Codes 1911 or 1916 (h	igher power levels)			

Fuel sulfur level will affect oil and filter service intervals. Higher fuel sulfur levels reduce oil service intervals as shown in the table.

- Use of diesel fuel with sulfur content less than 1000 ppm (0.10%) is strongly recommended.
- Use of diesel fuel with sulfur content greater than 5000 ppm (0.50%) is NOT recommended.
- DO NOT use diesel fuel with sulfur content greater than 10,000 ppm (1.00%).

Oil types (premium or standard) in table are as follows:

- "Premium Oils" include John Deere PLUS-50<sup>™</sup>, ACEA E6, or ACEA E7 oils, and assume the use of a specified John Deere oil filter.
- "Standard Oils" include John Deere TORQ-GARD SUPREME™, API CI-4 PLUS, API CI-4, ACEA E4, or ACEA E5 oils.

PLUS-50 is a trademark of Deere & Company TORQ-GARD SUPREME is a trademark of Deere & Company

OURGP11.0000047 -19-28JAN05-1/1

Serial Number: 161482 - Page 149

#### Lubrication and Maintenance Service Interval Chart—Generator (Standby) Applications

NOTE: The service intervals in the Lubrication and Maintenance Sections that follow reflect standard engines. Use service intervals listed

below for standby generators. Match service items below to titles in Lubrication and Maintenance Sections for procedures.

	Lubrication and Maintenance Service Intervals			
Every 2 Weeks	500 Hour/12 Month	2000 Hour/24 Month	As Required	
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***************************************		•	***************************************	
	Weeks	Weeks Month	Weeks Month Month	

<sup>a</sup>Replace primary air cleaner element when restriction indicator shows a vacuum of 625 mm (25 in.) H2O. If not equipped with indicator, replace air cleaner elements at 500 hours or 12 months, whichever occurs first.

During engine break-in, change the oil and filter for the first time after 100 hours of operation (maximum).

'If John Deere PLUS-50<sup>TM</sup> or ACEA-E6/E7 oil is used along with the specified John Deere oil filler, an extended drain oil pan is used, and the fuel sulfur content is less than 1000 ppm (0.10%), the oil and filter change interval may be extended to every 500 hours. Service intervals depend on sulfur content of the diesel fuel, oil pan capacity, and the oil and filter used. (See DIESEL ENGINE OIL AND FILTER SERVICE INTERVALS, in Fuels, Lubricants, and Coolant Section.)

<sup>4</sup>Also replace fuel filter elements anytime audible alarm sounds and trouble codes indicate plugged fuel filters (low fuel pressure). If no alarm sounds during the 12 month service interval, replace elements at that time, or after 500 hours of operation, whichever comes first.

\*Replace crankshaft damper at 4500 hours or 60 months, whichever occurs first. Damper cannot be repaired.

If John Deere COOL-GARD is used, the flushing interval may be extended to 3000 hours or 36 months. If John Deere COOL-GARD is used and the coolant is tested annually AND additives are replenished by adding supplemental coolant additives (SCAs), the flushing interval may be extended to 5000 hours or 60 months, whichever occurs first

Continued on next page

OURGP12.00000C6 -19-22DEC04-1/2

	Lubrication and Maintenance Service Intervals			
Item	Every 2 Weeks	500 Hour/12 Month	2000 Hour/24 Month	As Required
Adjust Engine Valve Clearance			•	
Drain Water From Fuel Filters When Alarm Sounds 9				•
Add Coolant				•
Service Air Cleaner Element				•
Replace Alternator Belt				•
Check Fuses				•
Check Electrical Wiring and Connections				•
Check Air Compressors (If Equipped)				•
Check Rear Power Take-Off (If Equipped)				•

Replace fuel filter element(s) when audible alarm sounds and trouble codes indicate plugged fuel filter(s) (low fuel pressure). If no alarm sounds during the 12 month service interval, replace element(s) at that time, or after the normal service interval, whichever comes first.

OURGP12,00000C6 ~19-22DEC04-2/2



PO BOX 3329 100 Power Drive Mankato, MN 56001 Phone: 507-625-7973

Fax: 507-625-2968 www.katolight.com

#### SP DIESEL

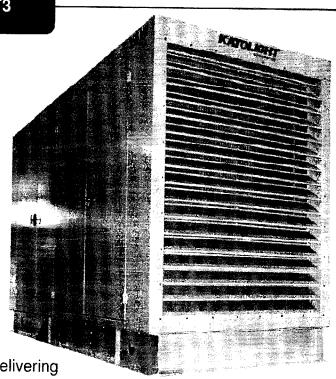


350 kWT3 @ 60 Hz. SP Series

SD350-X6T3

Katolight generators are available in a variety of sizes to meet the energy needs of the smallest homes to the largest facilities. You can rely on the environmentally friendly. clean, quiet stand-by power of our generators in emergency situations, day or night — and that means security and peace of mind for you.

Our generators are specially lesigned to ensure the lowest possible harmonic distortion, making them ideal for delivering quality power to hospitals, retail facilities, offices and many other locations.



#### **ENGINE FEATURES**

- Radiator Cooled
- Starter and alternator
- Oil pump and filter
- Air cleaner
- Electric Isochronous governor

#### **GENERATOR FEATURES**

- Brushless single bearing
- Automatic voltage regulator:
  - Over-excitation protection
  - Under-frequency compensation
- Available voltages:
  - -- 120/240 1 12 wire
  - 120/208 3 12 wire
  - -- 120/240 3 12 wire
  - 12 wire
  - 346/600 3 4 wire

#### **DIGITAL CONTROLLER FEATURES**

- Microprocessor based, digital read-out control system
- Unit-mounted
- Engine vitals monitored by LCD display:
  - Oil pressure
  - Running time
  - Engine temperature
  - Safety shutdowns:

  - --- HWT, OC, OS. OP, LWL
  - Battery voltage
  - Generator AC voltage
  - AC amperage
  - Frequency
- Continuous displays:
  - Oil pressure
  - Engine temperature
  - Battery voltage
  - Low fuel level

#### **ADDITIONAL FEATURES**

- Oil drain extension
- Flexible fuel connector
- Battery: 24 volt with rack
- Battery charger: 24 volt 6 amp
- Battery cables
- Vibration isolation pads
- Jacket water heater: -20°F
- Mainline circuit breaker
- Muffler
- UL2200 Listed

#### **OPTIONAL FEATURES**

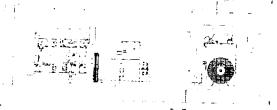
- Sub-base fuel tank with electrical stub-up area
- Weatherproof or Crystal Quiet enclosure
- **PMG**
- Sound attenuation

  - 1½" foam Sound scoops
- Remote annunciator



ENGINE TECHNICAL DATA		CORPORATION			
Model:		350 kW			
Туре:		Series 60 (6063HV35)			
Aspiration:		4-Cycle			
Cylinder Arrangement:	1	Turbocharged - Air to Air			
Displacement : cu. in. (lit)		6-Inline			
Bore x Stroke: in. (cm)		855 (14.0)			
Compression Ratio:		5.24 (13.3) x 6.61 (16.8)			
Rated RPM:		16.0:1			
BMEP: psi (kPA)		1800			
Maximum Power @ Rated RPM: hp (kW)		283 (1.95])			
INSTALLATION DATA OPU = Open Power I	Unit EPU = Enclosed Power Unit	550 (410)			
Dimensions & Weights	OPU	TARRY			
Length: in. (cm)	150 (381)	EPU			
Width: in. (cm)	68 (173)	150 (381)			
Height: in. (cm)	90.5 (230)	68 (173)			
Height with tank; in. (cm)	118.5 (301)	106.5 (271)			
Weight (less tank): lb (kg)	7,284 (3,304)	134.5 (342)			
Liquid Capacity	7,204 (3,304)	8,741 (3,965)			
Total Oil System: Gal (lit)		0.5.00			
Engine Jacket Water: Gal (lit)		9.5 (36)			
System Coolant Capacity: Gal (lit)		6.0 (23)			
Electrical System		42 (159)			
Electric Volts DC:					
Cold Cranking Amps Under 0°F (-17.8°C):		24V			
Exhaust System		950			
Gas Temp (Stack): °F (°C)					
Gas Volume @ Stack Temp; cfm (m²/min)		963 (517)			
Maximum Allowable Back Pressure: in H <sub>2</sub> 0 (kPa)		3,090 (88)			
Cooling System		40.8 (10.2)			
Ambient Capacity of Radiator: °F (°C)					
Water Pump Capacity: gpm (lit/min)		122 (50)			
Heat Rejection to Coolant; BTUM (kW)		96 (363)			
leat Rejection to Air to Air: BTUM (kW)		7.450 (131)			
Air Requirements		4.900 (86)			
Aspirating: cfm (m³/min)					
Air Flow Requirements for Rad. Cooled Unit: cfm (m /min)		1.160 (32.8)			
Fuel Consumption: Gal/Hr (Lit/Hr)		19.254 (545)			
at 100% of Power Rating:					
of 75% of Power Rating:		25.7 (97.3)			
it 50% of Power Rating:		20.1 (76.1)			
ound Level Data at	Full Load	13.6 (51.4)			
3 ft. (7m) Enclosed with 1.5" foam: (dBA)		No Load			
3 ft. (7m) Enclosed, 1.5" foam & scoops; (dBA)	85	82			
erate:	C/F	C/F			
Itilude :					
emperature:	197 per 1 000 6	t (305 m) above 600 ft (183 m)			

DISTRIBUTED BY:



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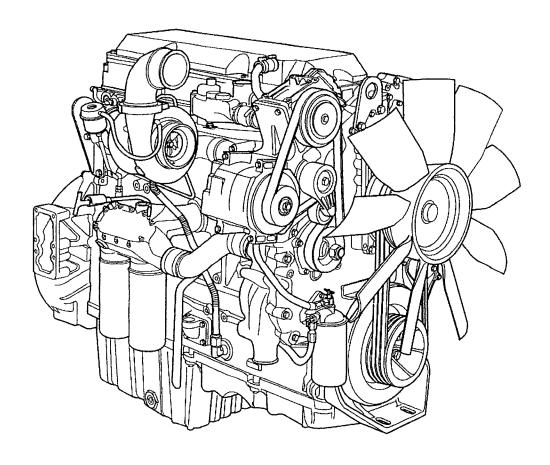
Toll Free: 800-325-5450

www.katolight.com A Tognum Group Company

# DETROIT DIESEL



## Series 60



# Engine Operator's Guide

# CALIFORNIA Proposition 65 Warning

Diesel Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

#### To the Operator

This guide contains instructions on the safe operation and preventive maintenance of your Detroit Diesel engine. Maintenance instructions cover routine engine services such as lube oil and filter changes in enough detail to permit self-servicing, if desired.

The operator should become familiar with the contents of this guide before operating the engine or carrying out maintenance procedures.

Power-driven equipment is only as safe as the person operating the controls. You are urged, as the operator of this diesel engine, to keep fingers and clothing away from the revolving belts, drive shafts, etc. on the engine installation.

Throughout this guide CAUTIONS regarding personal safety and NOTICES regarding engine perfor-

mance or service life will appear. To avoid personal injury and ensure long engine service life, always heed these instructions.

Whenever possible, it will benefit you to rely on an authorized Detroit Diesel service outlet for all your service needs from maintenance to major parts replacement. Authorized service outlets worldwide stock factory original parts and have the specialized equipment and experienced, trained personnel to provide prompt preventive maintenance and skilled engine repairs.

The information and specifications in this publication are based on the information in effect at the time of approval for printing. Contact an authorized Detroit Diesel service outlet for information on the latest revision. The right is reserved to make changes at any time without obligation.

#### WARRANTY

The applicable engine warranty is contained in the booklet entitled "Warranty Information for Series 60 Engines," available from authorized Detroit Diesel service outlets.

Keep this Operators Guide with the engine installation at all times. It contains important operating, maintenance, and safety instructions.

Devot Deskiñ, Denot û ese winschang arous des grif. Seres of F. COSC F. Commiser paí, ite somé, Powerfast F. and Power Guard hare registered trademants of Devot Dieser Comparition Jave Brake F. a step stereo trademant of Jacobs Verice Signater. Describer p. a registered trademant of Jacobs Verice Signat I comparities due mant a seregistered man of the American Petro eum national Fue Rod lang Saa Prof. Signater registered man of the American Petro eum national Fue Rod lang Saa Prof. Signater registered trademants of Daties Comparities. Describer Signater of the Comparities Comparities of Saa Rod Saa

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1—Lubricating Oil							MA	INT	EN/	NIC	=
2—Fuel Tank*	3.1.1.	·····		***************************************		<u>!</u>	MAINTENANCE			_	
3—Fuel Lines and Fl	exible Hoses*			······································							
4—Cooling System*											
5—Turbocharger*											
ITEM 100 H								SE	RVICE	2	
6—Battery*							REC	COMM		_	S
8—Drive Belts*						1	116.5	J ( ) ( ) ( ) ( )	Pro 1 4 12 /		U
ITEM 150 H	OURS 4,500	MILE	S				_				
1—Lubricating Oil*		*****************				R		TATIO			_
7—Tachometer Drive	•					1	IND	USTRI	AL EN	IGINE	S
9-Air Compressor*	***************************************										
10-Air Cleaner*			***************************************								
11—Lubricating Oil F	ilter*				I	₹					
12—Fuel Filters*					I	3					
	OURS 6,000	MILE	S								
13—Coolant/Inhibitor	Level*				1						
ITEM I	OURS	150	308	450	500	750	900	1050	1200	1350	1500
	IILES/XM (1000)	4.5/7.2	9.0/14.4	13.5/21.6		22.5/36	27/43.2	31.5/50.4	36/67.6	40.5/64.8	45/72
1—Lubricating Oil*	····	R	R	R	R	R	R	R	R	R	R
2—Fuel Tank*		<del> </del>	1		1				1		<u> </u>
4Cooling System*		ļ			1				I	<u> </u>	
7—Tachometer Drive	*	1	1	I	I	1	1	3	1	I	1
9—Air Compressor*		1	1	I	1	1	1	1	I	1	ı
11—Lubricating Oil F	ilter*	R	R	R	R	R	R	R	R	R	R
12—Fuel Filters*		R	R	R	R	R	R	R	R	R	R
13-Coolant Pump/In		1	I	I	I	I	ı	ı	I	1	ī
14—Cranking Motor*			Foll	ow Mar	nufactu	rer's Re	comme	ndations	3		
15-Air System*		1	I	1	I	1	I	I	ı	I	I
		1 .		- 1	1	1	T	ī	1	I	I
16—Exhaust System		1		1							
16—Exhaust System 17—Engine (Steam C		-					•				
16—Exhaust System 17—Engine (Steam C 18—Radiator			1	1	ı		i				I
16—Exhaust System 17—Engine (Steam C 18—Radiator 19—Oil Pressure	lean)*		1		I		i	1	, 		I
16—Exhaust System 17—Engine (Steam C 18—Radiator 19—Oil Pressure 20—Battery Charging	lean)*		1 1	1	I I		ı		i		I
16—Exhaust System 17—Engine (Steam C 18—Radiator 19—Oil Pressure 20—Battery Charging 21—Engine & Transmis	lean)*  Alternator* ssion Mounts*		1	1	I I I	•					1
16—Exhaust System 17—Engine (Steam C 18—Radiator 19—Oil Pressure 20—Battery Charging 21—Engine & Transmis 22—Crankcase Press	lean)*  Alternator* ssion Mounts*		1		I I				i		1
16—Exhaust System 17—Engine (Steam C 18—Radiator 19—Oil Pressure 20—Battery Charging 21—Engine & Transmis 22—Crankcase Press 23—Fan Hub*	lean)*  Alternator* sion Mounts* sure*		1	1	I I I			1	i		1
16—Exhaust System 17—Engine (Steam C 18—Radiator 19—Oil Pressure 20—Battery Charging 21—Engine & Transmis 22—Crankcase Press 23—Fan Hub 24—Thermostats & S	Alternator*   Sign Mounts*   Sure*   eals*		ı		I I I				İ		I
16—Exhaust System 17—Engine (Steam C 18—Radiator 19—Oil Pressure 20—Battery Charging 21—Engine & Transmis 22—Crankcase Press 23—Fan Hub 24—Thermostats & S 25—Crankcase Breat	Atternator' sion Mounts' sure' eals'		J		I I I			1	i		
16—Exhaust System 17—Engine (Steam C 18—Radiator 19—Oil Pressure 20—Battery Charging 21—Engine & Transmis 22—Crankcase Press 23—Fan Hub 24—Thermostats & S	Alternator' ssion Mounts' sure' eals' her'		ı		I I I				İ		I I

Table 4. Engine Maintenance—Stationary and Industrial Engines



PO BOX 3329 100 Power Drive Mankato, MN 56001 Phone: 507-625-7973 Fax: 507-625-2968

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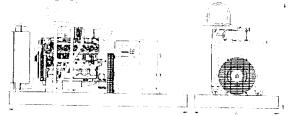
Serial Number: 161491 - Page 101

#### 150kWT3 Diesel Gen-Set



ENGINE TECHNICAL DATA		150 kW
Model:		6068HF285
Type:		4-Cycle
Aspiration:	T	urbocharged - Air to Air
Cylinder Arrangement:		6-Inline
Displacement : cu. in. (lit)		415 (6.8)
Bore x Stroke: in. (cm)	4	1.19 (10.6) x 5.00 (12.7)
Compression Ratio:		19.0:1
Rated RPM:		1800
BMEP: psi (kPA)	***************************************	253.3 (1,746)
Maximum Power @ Rated RPM:hp (kW)		237 (177)
INSTALLATION DATA OPU = Open Power Uni	t FPII = Enclosed Power Unit	
Dimensions & Weights	OPU	EPU
Length: in. (cm)	110 (279)	
Width; in. (cm)		110 (279)
Height: in. (cm)	52 (132)	52 (132)
Height with tank: in. (cm)	64 (163)	77 (196)
Weight (less tank): lb (kg)	82.9 (211)	97 (246)
Liquid Capacity	3,098 (1,405)	3.718 (4,462)
Total Oil System: Gal (lit)		
Engine Jacket Water: Gal (lit)		5.28 (20.0)
System Coolant Capacity: Gal (lit)		3.25 (12.3)
Electrical System		6.0 (22.7)
Electric Volts DC:		
		12V
Cold Cranking Amps Under 0°F (-17.8°C):		800
Exhaust System	요 그는 이 불스잔이를 위해 다.	
Gas Temp (Stack): °F (°C)		941 (505)
Gas Volume @ Stack Temp: cfm (m /min)		1,201 (34,0)
Maximum Allowable Back Pressure: in H <sub>2</sub> 0 (kPa)		30 (7.5)
Cooling System		
Ambient Capacity of Radiator: °F (°C)	197	
Water Pump Capacity: gpm (lit/min)		122 (50) 48 (180)
Heat Rejection to Coolant: BTUM (kW)		5,324 (93.5)
Heat Rejection to Air to Air: BTUM (kW)		1.821 (32)
Air Requirements		
Aspirating: cfm (m /min)		480 (17.6)
Air Flow Requirements for Rad. Cooled Unit: cfm (m²/min)		480 (13.6) 9.216 (261)
Fuel Consumption: Gal/Hr (Lit/Hr)		Z-10 (201)
At 100% of Power Rating:		11 0 (44.7)
At 75% of Power Rating:		11.8 (44.7)
At 50% of Power Rating:		9.2 (34.8)
Sound Level Data at	Full Load	6.7 (25.4)
23 ft. (7m) Enclosed with 1.5" foam: (dBA)		No Load
23 ft. (7m) Enclosed, 1.5" foam & scoops; (dBA)	C/F	C/F
Derate:	C/F	C/F
Altitude:		
	0.5% per 1,000 ft (	305 m) above 5,000 ft (1,524 m) and
l'emperature:	.5% per 1.000 ft.	(305 m) above 10,000 ft. (3,048 m)

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#### Diesel Engine Oil and Filter Service Intervals

The oil and filter service intervals in the table below should be used as guidelines because actual service intervals also depend on operation and maintenance practices. It is suggested that oil analysis be used prior to each oil change to be certain the proper oil and filter service interval is selected.

Oil and filter change intervals are based on oil pan capacity, type of oil and filter used, and sulfur content of the diesel fuel.

Refer to the following table for oil and filter service intervals.

and Filter Service Inte	ervals
Standard Oil Pans	Extended Drain Oil Pan <sup>b</sup>
Less than 100	00 ppm (0.10%)
250 hours	250 hours
375 hours	500 hours
	m (0.10 to 0.50%)
250 hours	250 hours
	pm (0.50 to 1.00%)
100 hours	100 hours
150 hours	150 hours
	Less than 100 250 hours 375 hours 1000 to 5000 pp. 150 hours 250 hours 5000 to 10,000 pp. 100 hours

<sup>a</sup>Oil Pans with Option Codes 1908 or 1909 (6-Cylinder Engines Only)

Oil Pans with Option Codes 1961 or 19AC (Larger Capacities) (6-Cylinder Engines Only)

Fuel sulfur level will affect oil and filter service intervals. Higher fuel sulfur levels reduce oil service intervals as shown in the table.

- Use of diesel fuel with sulfur content less than 1000 ppm (0.10%) is strongly recommended.
- Use of diesel fuel with sulfur content greater than 5000 ppm (0.50%) is NOT recommended.
- DO NOT use diesel fuel with sulfur content greater than 10,000 ppm (1.00%).

Oil types (premium or standard) in table are as follows:

- "Premium Oils" include John Deere PLUS-50<sup>TM</sup>, ACEA E6, or ACEA E7 oils, and assume the use of a specified John Deere oil filter.
- "Standard Oils" include John Deere TORQ-GARD SUPREME™, API CI-4 PLUS, API CI-4, ACEA E4, or ACEA E5 oils.

PLUS-50 is a trademark of Deere & Company TORQ-GARD SUPREME is a trademark of Deere & Company

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### Lubrication and Maintenance Service Interval Chart—Generator (Standby) Applications

NOTE: Use service intervals listed below for generator (standby) applications. Match service items

below to titles in Lubrication and Maintenance Sections for procedures.

	Lubrication and Maintenance Service Intervals				
Item	Every 2 Weeks	500 Hours or 12 Months	2000 Hours or 24 Months	As Required	
Operate Engine at Rated Speed and 50%-70% Load a Minimum of 30 Minutes	•	***************************************			
Check Engine Oil and Coolant Level	•				
Check Fuel Filter/Water Bowl	•				
Check Air Cleaner Dust Unloader Valve & Restriction Indicator Gauge <sup>a</sup>	•				
Visual Walk Around Inspection					
Service Fire Extinguisher		•	***************************************		
Check Engine Mounts		•			
Service Battery		•			
Change Engine Oil And Replace Oil Filter b.c		•			
Check Crankcase Vent System		•			
Check Air Intake Hoses, Connections, & System					
Replace Fuel Filter Elements		•			
Check Automatic Belt Tensioner and Belt Wear		•			
Check Engine Electrical Ground Connection		•			
Check Cooling System		•			
Coolant Solution Analysis-Add SCAs as required					
Pressure Test Cooling System					
Check Engine Speeds		•			
Check Crankshaft Vibration Damper (6.8 L Engines) <sup>d</sup>			*	***************************************	
Flush and Refill Cooling System *					
Test Thermostats					
Check and Adjust Engine Valve Clearance					
Test Glow Plugs					
Add Coolant			-	······································	
Replace Air Cleaner Elements				•	
Test Glow Plugs Add Coolant	s a vacuum of 625	mm /25 in \ H2O			

\*Replace primary air cleaner element when restriction indicator shows a vacuum of 625 mm (25 in.) H2O. If not equipped with indicator, replace air cleaner elements at 500 hours or 12 months, whichever occurs first.

During engine break-in, change the oil and filter for the first time after 100 hours of operation (maximum).

Service intervals depend on sulfur content of the diesel fuel, oil pan capacity, and the oil and filter used. (See DIESEL ENGINE OIL AND FILTER SERVICE INTERVALS, in Fuels, Lubricants, and Coolant Section.)

Replace crankshaft damper every 4500 hours or 60 months, whichever occurs first.

°If John Deere COOL-GARD is used, the flushing interval may be extended to 3000 hours or 36 months. If John Deere COOL-GARD is used and the coolant is tested annually AND additives are replenished as needed by adding a supplemental coolant additive, the flushing interval may be extended to 5000 hours or 60 months, whichever occurs first.

Continued on next page

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#### Lubrication and Maintenance

ltem	Lubrication and Maintenance Service Intervals			
	Every 2 Weeks	500 Hours or 12 Months	2000 Hours or 24 Months	As Required
Replace Fan and Alternator Belts				
Check Fuses				
Check Air Compressor (If Equipped)		*****		
Bleed Fuel System				<u> </u>

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